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likeness in color to its background the bryozoan escapes detection when extended from its capsule. From the structure of the sponge it is evident that it is not located upon the bryozoan until the latter has attained a considerable growth.

Although a considerable number of new species are described in this report, we find an occasional reduction of an old species to a synonym as a result of the examination of this fauna through several seasons, and a few incidental references to the variability of characters relied upon for specific distinctions.

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**Lake Fauna.**—The results of three summers' careful investigation of the life in a small lake in Finland are given in a faunistic-biological paper by Dr. K. E. Stenroos,<sup>1</sup> which amply proves the sufficiency of a small body of water to yield a rich fauna and to throw light on many important biological problems. Lake Nurmijärvi contains but two square kilometers, is but one meter in depth, presents a variety of shore formations, and is rich in vegetation. It is subject to considerable fluctuation in level and in temperature and to much shifting of the bottom by the ice in winter.

The author's faunal list includes 460 species, of which 157 belong to the Rotifera and 98 to the Entomostraca. The absence of nematodes, the paucity of Infusoria, and the small number of aquatic insects enumerated are probably due to the lack of especial attention to these groups, such as was given to the Rotifera. In this latter group 27 new species are described—the under surface of lily-pads having proved to be an inexhaustible source of new forms. In this list of Finland rotifers are to be found three species discovered by Jennings<sup>2</sup> in the Great Lake region of this continent. Among the Entomostraca Stenroos finds a seasonal polymorphism which renders necessary a considerable reduction in the number of species in this group. Thus from spring to autumn *Hyalodaphnia jardinii* is successively represented by forms which have been described as *H. obtusata*, *berolinensis*, *cucullata*, *kalbergensis*, and *autumnalis*. Likewise in the genus *Bosmina* the author admits but five species,

<sup>1</sup> Stenroos, K. E. Das Thierleben im Nurmijärvi-see, eine faunistisch-biologische Studie. *Acta Soc. pro Fauna et Flora Fennica*, Bd. xvii, pp. 1-259, Taf. I-III, mit einer Karte.

<sup>2</sup> Jennings, H. S. A List of the Rotatoria of the Great Lakes and of Some of the Inland Lakes of Michigan. *Bull. Mich. Fish Com.* (1894), No. 3. 34 pp., 1 pl.

the remaining twenty-two being recognized as varieties, or in some instances as mere seasonal or habitat forms. Two types of contemporaneous males are described for *B. brevirostris*, and are also stated to occur in *B. lilljeborgii*. One of the two exhibits a marked resemblance to the female in its secondary sexual characters,—armature of the post-abdomen and structure of the antennæ. The author suggests that this dimorphism may be serial in the life history of the male, representing two stages separated by a molt.

Although the lake is a small one, it presents a number of well-marked faunal areas, determined largely by the nature of the substratum and of the vegetation. Full lists are given of the characteristic faunas, and the adaptations exhibited by their constituent organisms are discussed at length. We note that no mention is made of the pelagic habit of many Rhizopoda, and that the author ranks Dinobryon, Hyalodaphnia, and Diaphanosoma as tycholimnetic organisms—forms which in most bodies of water are typical planktons. Attention is called to the uneven distribution of the Cladocera occasioned by the influence of light. At night they are dispersed through the water, on cloudy days they congregate in the upper strata, but on bright days they gather in great swarms on the sunny side of clumps of *Scirpus*, shifting their position as the day advances. The Copepoda and Ostracoda, on the other hand, appear to be indifferent to the influences of light to which the Cladocera show so marked a response.

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**The Embryonic Development of the Wall-Bee (*Chalicodoma muraria* Fabr.)**<sup>1</sup>—Prof. Justus Carrière's untimely death in 1894 left his valuable study of the embryology of the wall-bee incomplete. The notes and preparations of the Strasburg savant have been saved from oblivion by Dr. Otto Bürger, of Goettingen, and published in a fine quarto with thirteen excellent plates. The first part of the work, dealing with the formation of the germ-layers, is wholly the work of Carrière; the second part, by Bürger, is based on Carrière's preparations, notes, and sketches.

The work is of peculiar interest as the latest and most complete account of the embryonic development of a hymenopterous insect.

<sup>1</sup> Die Entwicklungsgeschichte der Mauerbiene (*Chalicodoma muraria* Fabr.) im Ei, v. Dr. Justus Carrière, herausgegeben und vollendet v. Dr. Otto Bürger. *Nova Acta, Abh. d. kaisl. Leop.-Carol. Akad. d. Naturforscher*, Bd. lxi (1897), Nr. 2, pp. 255-419, Taf. XIII-XXV.